

Project START: Sexually transmitted infections in men with a history of incarceration

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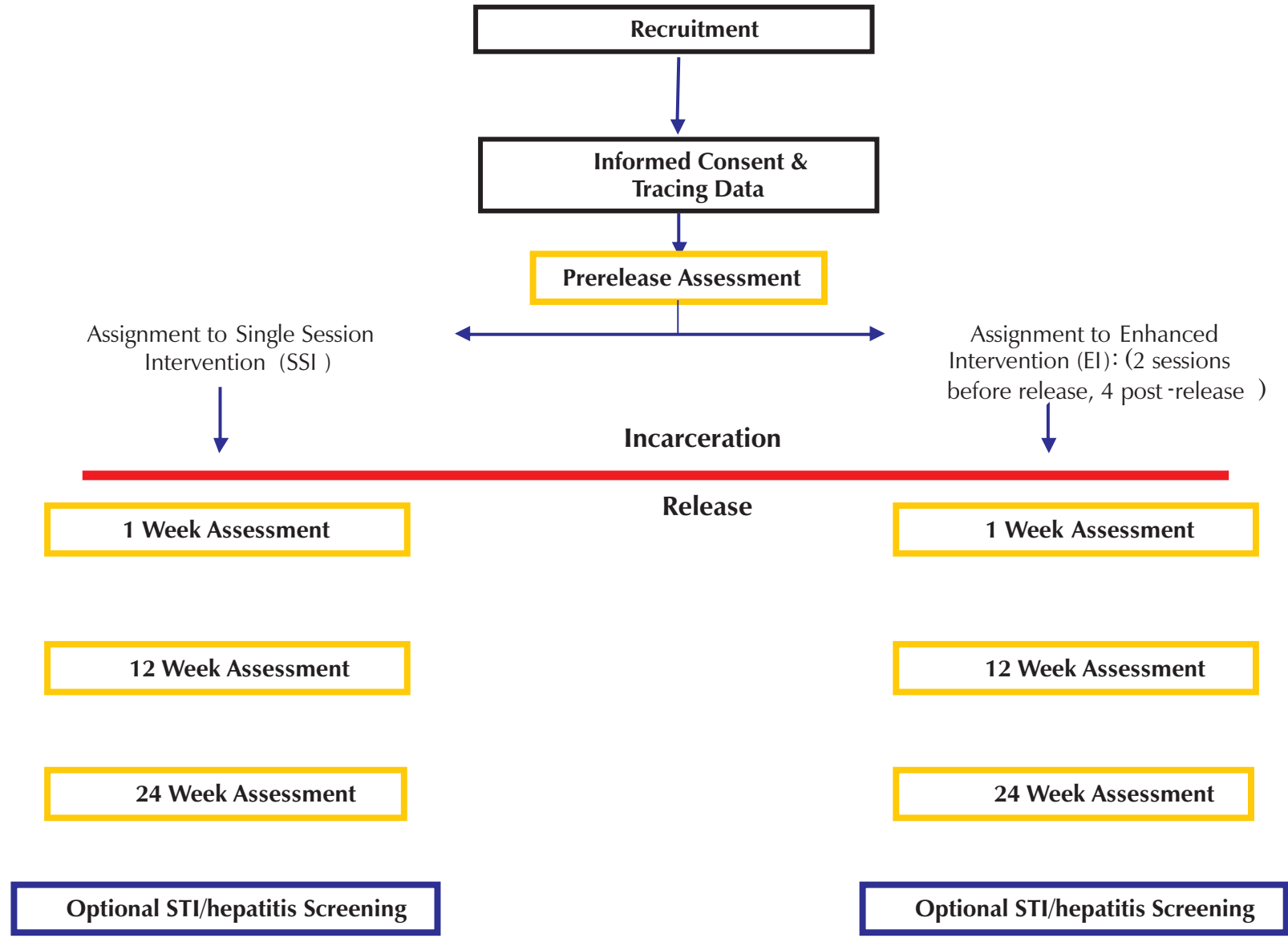
BACKGROUND

Men who are screened for infectious diseases upon entry into prisons have higher rates of HIV, sexually transmitted infections (STI), and hepatitis than the general US population. Many prisons offer screening, treatment, vaccination, and prevention programs to prevent new infections; however, little is known about rates of hepatitis and STI among young men after release to the community.

METHODS

Young men (18-29) released from prisons in 3 US States (Mississippi, Rhode Island, and Wisconsin) were enrolled into an HIV/STI/hepatitis prevention intervention study (Project START, see Figure 1). Participants who completed main trial activities, and who were not incarcerated at 24-weeks post-release were invited to enroll in a descriptive supplemental study assessing the prevalence of STI and hepatitis. Due to the small sample available for recruitment, this sub-study was not powered to detect differences between intervention arms. Incentives were provided for completing this activity, and most samples were collected in field settings. Urine was screened by nucleic acid amplification tests for Chlamydia, Gonorrhea, and Trichomoniasis. Blood was tested for Syphilis, and hepatitis B and C virus (HBV, HCV). Participant behavioral risks for the preceding 24 week period were obtained from the larger multi-site intervention trial assessment data. Logistic regression analyses were conducted to determine factors associated with STI and hepatitis infection (p<0.05).

Figure 1. Flow chart for recruitment and assessment of Project START participants.



RESULTS

72% participation rate (178 of 248 eligible participants)
Mean age was 22.5 yrs (SD=2.7) and 92% reported multiple lifetime incarcerations.
99% provided urine samples: infections diagnosed 19% (34 of 178)
93% provided blood samples: infections diagnosed 6% (10 of 168)
By 24-weeks after release from prison, 79% of participants had engaged in unprotected vaginal or anal sex, 74% reported multiple sexual partners, and 60% had sex with a risky partner (Table 2).
26% of participants tested positive for one or more infections (GC-1%, CT-12%, Trich-8%, Syphilis 0%; HCV-6%; active HBV infection-1%, Table 1). None of the participants reported symptoms of infection.
There was no difference in rates of sub-study participation or infections between men in the Single Session Intervention (SSI) and men in the Enhanced Intervention (EI).
56% of participants were susceptible to hepatitis B virus (Table 1).

SUMMARY

- This study identified:
- ▶ High rates of STI among young men released from prison.
 - ▶ High rates of risk behavior among young men released from prison.
 - ▶ High participation in screening for STI and hepatitis among young men released from prison.
 - ▶ Missed opportunity to vaccinate for hepatitis B; greater than 50% of men were susceptible to HBV after incarceration and should have been routinely offered HBV vaccination.
 - ▶ Different factors were associated with diagnosis of STI and HCV.
 - ▶ Participants' reports of sexual risk behaviors during reporting period were not associated with STI diagnosis.

RECOMMENDATIONS

High prevalence rates of infections and post-release behaviors suggest:
1) the need to screen for STIs and vaccinate for HBV upon entry into custody, and
2) effective HIV/STI/hepatitis prevention programs focusing on behaviors after release from prison are needed for incarcerated men. Programs should target IDUs and men with less than high school education for they may be at elevated risk for hepatitis and STI.

LIMITATIONS

This study identified prevalent and not incident infections. We are not able to determine when infections were acquired: before enrollment into the main trial or during study participation.
Results may not represent all Project START participants because of incarceration at time of sub-study enrollment, loss to follow-up from main trial, and unwillingness to participate in urine and blood testing activities.

Table 1. STI and Hepatitis infections in 18-29 year old men 24 weeks after release from prison

| | N (%) |
|-------------------|------------|
| Gonorrhea | |
| No | 173 (99%) |
| Yes | 2 (1%) |
| Chlamydia | |
| No | 154 (88%) |
| Yes | 21 (12%) |
| Trichomoniasis | |
| No | 160 (92%) |
| Yes | 13 (8%) |
| Syphilis | |
| No | 167 (100%) |
| Yes | 0 (0%) |
| Hepatitis B virus | |
| Susceptible | 92 (55%) |
| Immune | 72 (43%) |
| Infection | 2 (1%) |
| Hepatitis C virus | |
| No | 157 (94%) |
| Yes | 10 (6%) |

Table 2. Study participant characteristics and rates of STI and hepatitis C virus infections.

| Demographic Characteristics | All sub-study participants N (%) | Rate of STI diagnosis N (%) | Rate of Hepatitis C diagnosis N (%) |
|--|-------------------------------------|--------------------------------|--|
| Site | | | |
| Mississippi | 30 (17%) | 6 (20%) | 1 (3%) |
| Rhode Island | 63 (35%) | 14 (22%) | 6 (10%) |
| Wisconsin | 85 (48%) | 14 (16%) | 3 (4%) |
| Age group, years | | | |
| 18-24 | 143 (80%) | 28 (20%) | 9 (6%) |
| 25-29 | 35 (20%) | 6 (17%) | 1 (3%) |
| Race/ethnicity ^e | | | |
| Black, non-Hispanic | 82 (46%) | 21 (26%) | 1 (1%) |
| White, non-Hispanic | 55 (31%) | 9 (16%) | 8 (15%) |
| Hispanic | 20 (11%) | 3 (15%) | 1 (5%) |
| Other | 21 (12%) | 1 (5%) | 0 (0%) |
| Education ^e | | | |
| < High school/GED | 79 (45%) | 20 (25%) | 4 (5%) |
| ≥ High school/GED | 98 (55%) | 13 (13%) | 6 (6%) |
| Post release behaviors/risks | | | |
| Drinking alcohol (≥ 5 drinks) ^b | | | |
| No | 43 (24%) | 11 (26%) | 2 (5%) |
| Yes | 135 (76%) | 23 (17%) | 8 (6%) |
| Marijuana use | | | |
| No | 70 (47%) | 13 (19%) | 5 (7%) |
| Yes | 108 (53%) | 16 (19%) | 5 (5%) |
| Other drugs ^c | | | |
| No | 122 (68%) | 22 (20%) | 3 (2%) |
| Yes | 56 (32%) | 12 (15%) | 7 (13%) |
| Injection drug use ^e | | | |
| No | 172 (97%) | 34 (20%) | 6 (3%) |
| Yes | 6 (3%) | 0 (0%) | 4 (67%) |
| Multiple sexual partners ^e | | | |
| No | 45 (25%) | 9 (20%) | 6 (13%) |
| Yes (range 2 to 50) | 133 (75%) | 25 (19%) | 4 (3%) |
| Unprotected vaginal or anal sex | | | |
| No | 37 (21%) | 5 (14%) | 4 (11%) |
| Yes | 141 (79%) | 29 (21%) | 6 (4%) |
| Risky sexual partner ^d | | | |
| No | 27 (40%) | 7 (26%) | 1 (4%) |
| Yes | 147 (60%) | 27 (18%) | 8 (5%) |

^aGonorrhea, Chlamydia, or Trichomoniasis infection (no positive Syphilis infections detected).
^b5 or more drinks of alcohol 1 or more days a week
^cdrugs excluding alcohol and marijuana
^da partner who had any of the following: a history of an STD, other concurrent sex partners, smoked crack, injected drugs, traded sex for drugs or money, or was HIV-seropositive
^ep<0.05 for rates shown in bold text

Table 3. Results from logistic regression analyses for STI diagnoses.

| | Odds Ratio Estimates | |
|-------------------|----------------------|-----------------------|
| | Point Estimate | 95% Confidence Limits |
| ≥ High school/GED | 0.451 | 0.208 - 0.978 |

Participants with a high school education or GED were less likely to have an STI diagnosis than participants without a high school education (OR 0.451, 95% CI 0.21 - 0.98).

Table 4. Results from logistic regression analyses for HCV diagnoses.

| | Odds Ratio Estimates | |
|---|----------------------|------------------------|
| | Point Estimate | 95% Confidence Limits |
| Multiple sex partners during reporting period | 0.213 | 0.047 - 0.976 |
| IDU during reporting period | 52.528 | 7.041 - 391.872 |

Participants who had multiple sex partners during the reporting period were less likely to have a HCV diagnosis than those who did not have multiple sex partners (OR=0.21, 95% CI 0.05 - 0.98).
Participants who injected drugs during the reporting period were more likely to have a diagnosis of HCV infection than those who did not inject drugs (OR=52.5, 95% CI 7.04 - 391.87).

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